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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/019,134	12/20/2001	Axel Heinrich	CL/V-31010A	1918

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PATENT DEPARTMENT
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EXAMINER	
SAWHNEY, HARGOBIND S	
ART UNIT	**PAPER NUMBER**
2875	

DATE MAILED: 07/13/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/019,134	HEINRICH ET AL.	
	Examiner	Art Unit	
	Hargobind S. Sawhney	2875	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *4/18/2006* .

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1,3-10 and 12-18* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1,3-10 and 12-18* is/are rejected.

7)☐ Claim(s) ____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

DETAILED ACTION

1. The amendment filed on April 18, 2006 has been entered. Accordingly:

   - Claim 1 has been amended;

   - Claims 2 and 11 have been canceled.

2. Although the transmittal page of the above-indicated amendment identifies correct Application Number 10/019,134, each of the claim pages is identified with wrong Application Number 10/267,377. All documentation of the instant application must be identified with correct Application Number, which is 10/019,134. Corrections are required.

Claim Rejections - 35 USC § 112

3. The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

4. Claim 18 is rejected under 35 U.S.C. 112, first paragraph, because the specification, while being enabling for "crosslinking" in line 2 on page 1, does not reasonably provide enablement for "rapid crosslinking" recited in the newly added claim 18 dependent on the amended Claim 1. The specification does not enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to understand the limitation "rapid crosslinking", and its distinction from the phrase "crosslinking" the invention commensurate in scope with claim 18. The specification

does not detail operational parameters or the apparatus supporting the "rapid crosslinking".

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

6. Claims 1,3,6, 16-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Martin et al. (US Patent No. 6,220,845) in view of Ono (Japanese Pattern No.: JP 61-261009) hereafter referred as Ono.

Regarding the amended Claim 1, lines 5 and 6, the functional recitation "said device provides high intensity illumination for rapid crosslinking" has not been given patentable weight because it is a narrative in form. In order to be given patentable weight, a functional recitation must be expressed as a "means" for performing the specific function, and must be supported by the recitation in the claim of sufficient structure to warrant the presence of the functional language.

The recitation "said device provides high intensity illumination for rapid crosslinking" does not include those structural limitations, which enable the device to support "rapid crosslinking with high intensity illumination.

Regarding amended claim 1, Martin et al. ('845) discloses a UV illuminating device (Figure 3) comprising:

- a ultraviolet (UV) lamp(not shown, column 8, lines 30 and 31) remotely generating radiation, and the generated radiation being routed to the mold halves and polymerizable material via fiber optics linked to one casting mould (column 8, lines 55-59).

However, Martin et al. ('845) does not specifically teach the ultraviolet (UV) lamp being surrounded by a plurality of optical fibers.

On the other hand, Ono discloses a UV light-emitting lamp 8 including a light emitting part surrounded by fiber optics 7 (Figure 1, English translated abstract)

It would have been an obvious to one having ordinary skill in the art at the time of invention to modify the optic –bases UV light system of Martin et al. ('845) by providing optic fibers surrounding the UV lamp as taught by Ono for supplying equal share of the generated radiation energy for uniform curing of each photo-curable lens.

Regarding Claim 3, Martin et al. ('845) in view of Ono further teaches the UV lamp being a mercury lamp (Martin, Figure 3, column 9, lines 5 and 6).

Regarding Claim 6, Martin et al. ('845) in view of Ono teaches the UV illuminating device comprising a mercury lamp as a UV light source 44 having emission spectrum of UV intensity at 320-390 nm (Martin, Figure 3, column 9, lines 5-8). However, Martin et al. ('845) in view of Ono does not teach the UV lamp operating at the claimed emission spectrum 280-360.

It would have been an obvious to one having ordinary skill in the art at the time of invention to modify the UV illumination system of Martin et al. ('845) in view of Ono for its operation at the emission spectrum of 280-360, since it has been held that

discovering an optimum value of a result effective variable involves only routine skill in the art.

Regarding claim 16, Martin et al. ('845) in view of Ono teaches the UV illuminating device comprising the fiber optics 7 surrounding the UV lamp 8 fiber optics (Ono, Figure 1, English translated abstract)

Regarding Claim 17, Martin et al. ('845) in view of Ono teaches the UV illuminating device comprising;

- a plurality of optical fibers 7 each providing a level of UV illumination to one casting mould 2 sufficient for polymerization of material throughout the casting mould (Ono, Figure 1, English translated abstract).

Regarding claim 18, "rapid crosslinking" has been not give patentable weight.

7. Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Martin et al. (US Patent No. 6,220,845) in view of Ono (Japanese Pattern No.: JP 61-261009) as applied to Claim 3 above, and further in view of Biller et al. (U.S. Patent No. 5,824,373).

Martin et al. ('845) in view of Ono discloses the UV illuminating device comprising a mercury lamp as a UV light source. However, neither combined nor individual teaching of Martin et al. ('845) and Ono teaches the mercury lamp being a doped mercury lamp.

On the other hand, Biller et al. ('373) discloses a radiation curing of powder coating with the UV radiation source (abstract, column 22, lines 17-20 and lines 29-33). Biller et al. ('373) additionally teaches the uses of doped mercury lamps (column 22,

lines 29-33). This type of mercury lamps doped with metal halide is well known in the art for photo-polymerization process.

It would have been an obvious to one having ordinary skill in the art at the time of invention to modify the UV illumination system of Martin et al. ('845) in view of Ono by providing a doped mercury lamp for furnishing UV radiation energy as taught by Biller et al. ('373) for advantages and benefits including enhancement of particular wavelengths of the radiation source and its long operational life.

8. Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Martin et al. (US Patent No. 6,220,845) in view of Ono (Japanese Pattern No.: JP 61-261009) as applied to Claim 1 above, and further in view Nath (U.S. Patent No. 3,995,934).

Martin et al. ('845) in view of Ono teaches the UV illuminating device comprising a mercury lamp as a UV light source coupled to optical fibers. However, neither combined nor individual teaching of Martin et al. ('845) and Ono specifically discloses the optical fibers being liquid optical fibers.

On the other hand, Nath ('934) discloses a flexible liquid light guide –optical fiber 10- (Figures 1 and 2) applied for light, including UV radiation, transmission, filled with light transmitting fluid 20 (Figures 1 and 2, column 2, lines 10 and 11).

It would have been an obvious to one having ordinary skill in the art at the time of invention to modify the UV illumination system of Martin et al. ('845) in view Ono by providing liquid optical fibers for light transmission as taught by Nath ('934) for advantages and benefits of efficient UV – high powered light transmission for long period of time..

9. Claims 7, 8 and 12-14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Martin et al. (US Patent No. 6,220,845) in view of Ono (Japanese Pattern No.: JP 61-261009) as applied to claim 1 above, and further in view Kennedy et al. (U.S. Patent No. 5,521,392).

Regarding claims 7, 8 and 12-14, Martin et al. ('845) in view of Ono teaches the UV illuminating device comprising a remotely generated polymerization radiation and routed via fiber optic system (Figure 3, column 8, lines 55-59). However, neither combined nor individual teaching of Martin et al. ('845) and Ono teaches the disclosed UV radiation system including:

- an UV radiation measuring unit;
- a sensor measuring the radiation intensity of the UV lamp, and being connected to the UV radiation regulating unit;
- a diaphragm positioned between the optical fiber and the UV lamp of the device;
- the diaphragm further including an aperture being adjusted by a stepping motor unit; and
- the aperture of the diaphragm being controlled in accordance of the measurement of intensity of the emitted UV radiation.

On the other hand, regarding claims 7,8 and 12-14, Kennedy et al. ('392) discloses a light curing system (Figure 2) with a control module 20 operationally coupled to the components including:

- a sensor 18 (Figures 1 and 2, column 3, lines 1-3, and column 5, lines 1-4) measuring the radiation intensity of the UV lamp 12 (Figures 1 and 2, column 3, lines 1-3; and column 4, lines 54 and 55), and being connected to the UV radiation regulating unit 20 (Figures 1 and 2, column 3, lines 1-3; and column 5, lines1-4);
- an UV radiation measuring unit 14 (Figures 1 and 2, column 3, lines 1 and 2, and column 4, lines 27,28 and 36-39);
- a diaphragm 54 (Figures 1 and 2, column 4, line 28) positioned between the optical fiber 16 (Figures 1 and 2, column 3, line 3) and the UV lamp 12 of the device;
- the diaphragm 54 further including an aperture (Not shown) being adjusted by a solenoid 60 (Figure 2, column 4, lines 29-32), functionally equivalent as a stepping motor unit 58 (Figure 2, column 4, lines 29-32); and
- the aperture of the diaphragm 54 being controlled in accordance of the measurement of intensity of the emitted UV radiation (Figure 2, column 4, lines 36-41).

Thus, regarding claims 7, 8 and 12-14, it would have been an obvious to one having ordinary skill in the art at the time of invention to modify the UV illumination system of Martin et al. ('845) in view of Ono by providing a control module as taught by Kennedy et al. ('392) for advantages and benefits of producing a preselected amount and intensity of UV light energy needed for photo curing of polymerizable material.

10. Claims 9 and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Martin et al. (US Patent No. 6,220,845) in view of Ono (Japanese Pattern No.: JP 61-261009) as applied to Claim 1 above, and further in view Gonser (US Patent No. 4,385,344).

Regarding Claim 9, neither combined nor individual teaching of Martin et al. ('845) in view of Ono discloses a quartz rod positioned between the UV lamp and the light admission area of each of the optical fibers.

On the other hand, Gonser ('344) teaches a light apparatus for curing a photo curable polymer, and the light apparatus including a quartz rod 55 positioned between the UV lamp and the light admission area of each of the optical fibers (Figure 1, column 3, lines 10-13).

It would have been an obvious to one having ordinary skill in the art at the time of invention to modify the UV illumination system of Martin et al. ('845) in view of Ono by providing a quartz rod as taught by Gonser ('344) for transmitting light uniformly and at low temperature providing operational efficiency and long life for fiber optics.

Regarding Claim 10, Martin et al. ('845) in view of Ono, and further in view of Gonser ('344) teaches the light apparatus (Figure 1) further including a cut-on filter 51 positioned between the quartz rod and the UV lamp 45. However, neither combined nor individual teaching of Martin et al. ('845), Ono and Gonser ('344) discloses the claimed positioning of the cut-on filter disposed between the quartz rod and the optical fibers.

On the other hand, optically and operationally the positioning of the cut-on filter as taught by Gonser ('344) is equivalent.

It would be have been obvious to one of ordinary skill in the art at the time of the invention to modify the light apparatus of Martin et al. ('845) in view of Ono, and further in view of Gonser ('344) by relocating the cut-on filter, since it has been held that rearranging parts of an invention involves only routine skill in the art.

11. Claim 15 is rejected under 35 U.S.C. 103(a) as being unpatentable over Martin et al. (US Patent No. 6,220,845) in view of Ono (Japanese Pattern No.: JP 61-261009) as applied to Claim 1 above, and further in view Sopori (US Patent No. 5,217,285).

Neither combined nor individual teaching of Martin et al. ('845) in view of Ono discloses a UV condenser mounted between the optical fiber and upper mould half.

On the other hand, Sopori ('285) teaches an illuminating apparatus emitting UV light, and comprising a condenser 30 (Figure 1, column 6, line 68; column 7, lines 1 and 2; and column 9, lines 35-39) positioned between the optical fiber 48 (Figure 1, column 9, lines 29 and 30) and a surface receiving UV light 42 (Figure 1).

It would have been an obvious to one having ordinary skill in the art at the time of invention to modify the UV illumination system of Martin et al. ('845) in view of Ono by providing a condenser as taught by Sopori ('285) to collimate UV light for benefits and advantages of uniform distribution of UV light needed for even curing of the lens.

Response to Amendment

12. Applicant's arguments filed on February 28, 2005 with respect to the 35 U.S.C. 103(a) rejections of claims 1,3-10 and 12-17 have been fully considered but they are not persuasive.

Argument: Regarding claim 1, Martin et al. ('845) teaches a two-step illumination, which does not focus on the claimed "rapid crosslinking". Further, Ono (Japanese Pattern No.: JP 61-261009) does not cure the above-indicated deficiency of martin's teaching, as Ono does not teach polymerization but rather is for curing the adhesive resins.

Response: In polymer chemistry and Process Engineering, curing refers to the toughening or hardening of a polymer material by cross-linking of polymer chains, which is the polymeriztion process.

Argument: Regarding claim 1, the modification - Martin et al. (US Patent No. 6,220,845) in view of Ono (Japanese Pattern No.: JP 61-261009) – suggested by the examiner uses hindsight.

Response: In response to applicant's argument that the examiner's conclusion of obviousness is based upon improper hindsight reasoning, it must be recognized that any judgment on obviousness is in a sense necessarily a reconstruction based upon hindsight reasoning. But so long as it takes into account only knowledge which was within the level of ordinary skill at the time the claimed invention was made, and does not include knowledge gleaned only from the applicant's disclosure, such a reconstruction is proper. See *In re McLaughlin*, 443 F.2d 1392, 170 USPQ 209 (CCPA 1971).

As indicated in section 5 of this office action, Martin et al. ('845) discloses a UV illuminating device (Figure 3) comprising: a ultraviolet (UV) lamp(not shown, column 8, lines 30 and 31) remotely generating radiation, and the generated radiation being routed to the clamped mold halves and polymerizable material via fiber optics (column 8, lines 55-59) with a control system providing controlled exposure and energy level. Thus, Martin et al. ('845) teaches the device, including a UV lamp and optic fibers, for polymerization of the material. As, the modification suggested by the examiner is not based on the knowledge gleaned only from the applicant's disclosure, the examiner has not used hindsight.

Argument: Regarding claims 5, 7, 8 and 12-14, Ono (Japanese Pattern No.: JP 61-261009) and /or Martine ('845) must suggest for their obvious combination for the modification suggested by the examiner.

Response: In response to applicant's argument that there is no suggestion to combine the references, the examiner recognizes that obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art.

See *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988)and *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992).

As indicated in section 5 of this office action, Martin et al. ('845) discloses a UV illuminating device (Figure 3) operationally and optically couplable with a plurality of optical fibers.

However, Martin et al. ('845) does not specifically teach the ultraviolet (UV) lamp being surrounded by a plurality of optical fibers.

On the other hand, Ono discloses a UV light-emitting lamp 8 including a light emitting part surrounded by fiber optics 7 (Figure 1, English translated abstract)

It would have been an obvious to one having ordinary skill in the art at the time of invention to modify the optic –bases UV light system of Martin et al. ('845) by providing optic fibers surrounding the UV lamp as taught by Ono for supplying equal share of the generated radiation energy for uniform curing of each photo-curable lens.

Martin ('845) in combination with Ono provides the knowledge known for the application of optical fibers. Thus, the above-indicated combination is obvious for the modification suggested by the examiner.

Argument: Regarding claims 5, 7, 8 and 12-14, the cited reference Nath (U.S. Patent No. 3,995,934) teaches a flexible liquid light guide, which is usable for within the human body. There is no clear teaching of the usability of a flexible light guide for curing ophthalmic material.

Response: In response to applicant's argument that there is no suggestion to combine the references, the examiner recognizes that obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art. See *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988) and *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992).

As indicated in section 7 Martin et al. ('845) in view of Ono teaches the UV illuminating device comprising a mercury lamp as a UV light source coupled to optical fibers. However, neither combined nor individual teaching of Martin et al. ('845) and Ono specifically discloses the optical fibers being liquid optical fibers.

On the other hand, Nath ('934) discloses a flexible liquid light guide –optical fiber 10- (Figures 1 and 2) applied for light, including UV radiation, transmission, filled with light transmitting fluid 20

(Figures 1 and 2, column 2, lines 10 and 11). It is the teaching of liquid light guide usable for providing light at the location remote from the light source, which is combined with the teaching of Martin et al. ('845) in view of Ono.

Martin ('845) in combination with Ono and Nath provides the knowledge known for the application of optical fibers. Thus, the teaching disclosed by Ono makes the combination obvious for the modification suggested by the examiner.

Conclusion

13. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

14. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Hargobind S Sawhney whose telephone number is 571 272 2380. The examiner can normally be reached on 8:30 AM - 4:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Sandra O'Shea can be reached on 571 272 2378. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

HSS

7/1/2006

ALI ALAVI
PRIMARY EXAMINER